Institut du Cerveau ICM

Paris Brain Institute (ICM) is recruiting a
Collective Interest Project (CIP) Post-doctoral fellow (M/F)
Contract start date: October 2024
Contract duration: 1 year, renewable
### _At Paris 13th district_

The Paris Brain Institute (ICM) is a private foundation recognized as being of public utility, whose purpose is fundamental and clinical research on the nervous system. On the same site, 850 researchers, engineers and doctors cover all the disciplines of neurology, with the aim of accelerating discoveries on the functioning of the brain and the development of treatments for diseases such as: Alzheimer's, Parkinson's, multiple sclerosis, epilepsy, depression, paraplegia, tetraplegia, etc.

POSTDOCTORAL FELLOW

CONTEXT

DBS: from genetic mutations to motor circuit dysfunctions & recovery
DBS is an exciting new interdisciplinary, collaborative, and multi-model project at the ICM. By bridging approaches across disciplines, the project's goal is to build novel strategies to improve dopaminergic cell survival and deep-brain stimulation of resilient circuits in Parkinson's disease.
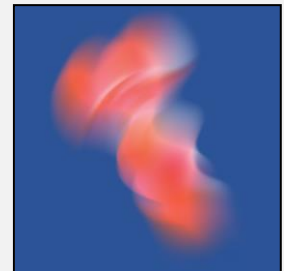
Collective Interest Projects - Collaborative, interdisciplinary, innovative & transformative
As part of DBS, we will implement the hiring of post-docs each dedicated to one collective interest project to be co-supervised by two ICM team leaders, experts from different fields. The early-career researchers will receive training in the field that they have not received training on yet, either genetics, cellular physiology, imaging, optogenetics, behavior or modelling.

We aim to attract high level interdisciplinary researchers by offering world class research facilities and double supervision from leaders in the relevant fields. You would be part of a dynamic community of young researchers within a highly collaborative environment.

In the project **Behavioral homology: Effect of dopamine on variability of motor patterns in fish and humans** the candidate will be hosted by the **Experimental Neurosurgery** team and **SIBBIL** team, co-supervised by **Dr. Marco Romanato, expert in instrumented human motion analysis, working in the lab of Prof. Marie-Laure Welter, an MD expert in human walking and deep brain stimulation in Parkinson's disease,** and **Dr. Antonio Carlos Costa, an expert in data-driven approaches to behavioral dynamics, working in the lab of Dr. Claire Wyart, an expert in optogenetics and imaging in zebrafish**. The postdoctoral fellow will develop computational approaches for the unsupervised quantification of Parkinsonism from high resolution movement data. The first goal will be to quantify the role of dopamine on posture and navigation in larval zebrafish, building upon custom analysis approaches. Subsequently, the aim will be to extend this analysis of human gait dynamics to dissect the effect of different therapeutic strategies on Parkinsonism. The postdoctoral fellow will develop computational frameworks for quantifying the multiple scales of behavioral dynamics and analyzing gait cycle stability at different levels of Parkinsonism.

MISSIONS
- _Analysis of posture data in zebrafish and human patients in different Parkinson's conditions and therapies_
- _Supervision of engineers and graduate students in the SIBBIL and Experimental Neurosurgery teams_
- _The position will be held in the Paris Brain Institute_

CONDITIONS
- _Remuneration scale: 35 000 – 45 000 € ("brut annuel")_
- _Fixed-term contract (CDD)_
- _The position comes with 10 000 euros available for training_

PROFILE

KNOW-HOW
- *Expertise in non-linear dynamics, information theory and/or computational physics*
- *Supervision of technicians, students and/or engineers*
- *PhD in physics, biophysics, mathematics, neuroscience, engineering*
- *Academic reading, writing, and conversational skills in English (required) and French (desired)*

KNOWLEDGE
- *Knowledge acquired through education in Physics, Neuroscience, Engineering*
- *Fluent in English, notions of French*
- *Knowledge in coding using Python, Matlab, Julia*
- *Organized, disciplined, proactive, autonomous, excellent team player*
- *Training in non-linear dynamics and statistical mechanics*

SOFT SKILLS
- *Rigorous, communicative, curious to understand and broaden her/his field of expertise*
- *Excellent team player working with engineer, technicians and other postdocs in the DBS project*
- *Autonomy in thinking new paradigms and analyzing new data*
- *Excellent communication both oral and written*

The Paris Brain Institute is committed to combating all forms of discrimination. We guarantee an inclusive and respectful working environment that embraces diversity.

All our positions are open to people with disabilities.

Please send your CV, letter of motivation and 2 reference letters with contact details to antonio.costa@icm-institute.org, marielaure.welter@icm-institute.org, and joana.guedes@icm-institute.org with the subject: "DBS UnstablePeriodicOrbit CIP Post-doc (M/F)"

Please send your CV to recrutement@icm-institute.org with the subject: "DBS UnstablePeriodicOrbit CIP Post-doc (M/F)"